

# TECHNICAL DATA

# MQ-135 GAS SENSOR

## FEATURES

Wide detecting scope  
Stable and long life

Fast response and High sensitivity  
Simple drive circuit

## APPLICATION

They are used in air quality control equipments for buildings/offices, are suitable for detecting of NH<sub>3</sub>, NO<sub>x</sub>, alcohol, Benzene, smoke, CO<sub>2</sub>, etc.

## SPECIFICATIONS

### A. Standard work condition

Symbol	Parameter name	Technical condition	Remarks
V <sub>c</sub>	Circuit voltage	5V±0.1	AC OR DC
V <sub>H</sub>	Heating voltage	5V±0.1	AC OR DC
R <sub>L</sub>	Load resistance	can adjust	
R <sub>H</sub>	Heater resistance	33Ω±5%	Room Tem
P <sub>H</sub>	Heating consumption	less than 800mw	

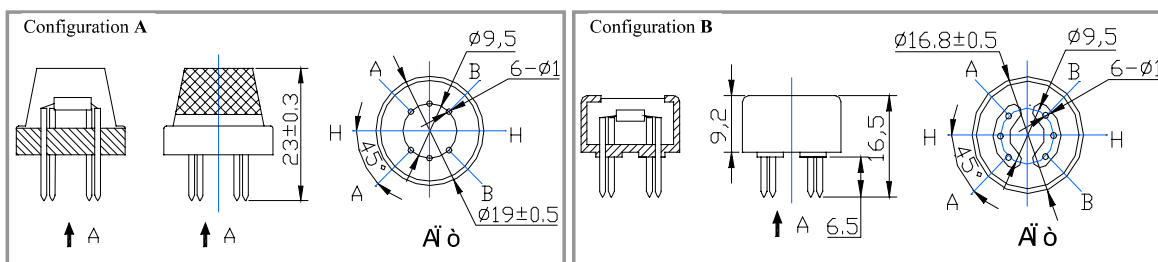
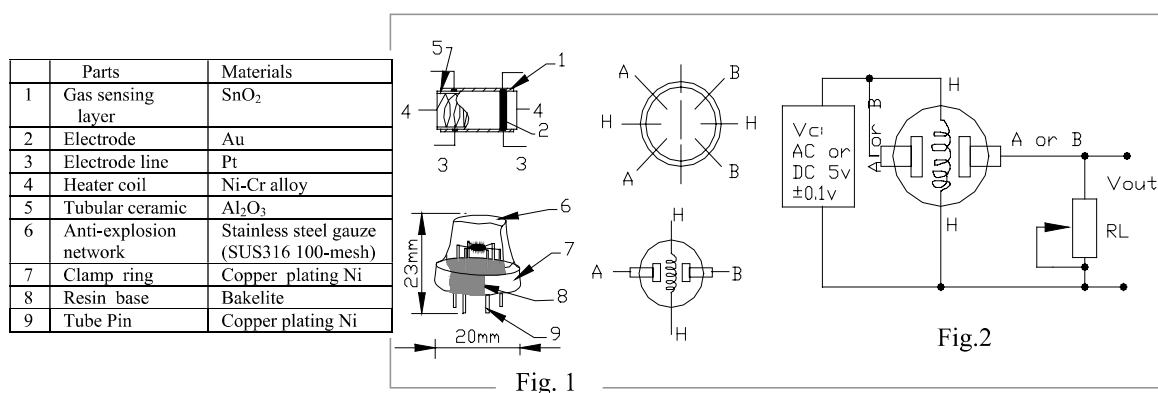
### B. Environment condition

Symbol	Parameter name	Technical condition	Remarks
T <sub>ao</sub>	Using Tem	-10 -45	
T <sub>as</sub>	Storage Tem	-20 -70	
R <sub>H</sub>	Related humidity	less than 95%Rh	
O <sub>2</sub>	Oxygen concentration	21%(standard condition)Oxygen concentration can affect sensitivity	minimum value is over 2%

### C. Sensitivity characteristic

Symbol	Parameter name	Technical parameter	Remark 2
R <sub>s</sub>	Sensing Resistance	30KΩ-200KΩ (100ppm NH <sub>3</sub> )	Detecting concentration scope 10ppm-300ppm NH <sub>3</sub> 10ppm-1000ppm Benzene 10ppm-300ppm Alcohol
α (200/50) NH <sub>3</sub>	Concentration Slope rate	≤0.65	
Standard Detecting Condition	Temp: 20 ±2 Humidity: 65%±5%	V <sub>c</sub> :5V±0.1 V <sub>H</sub> : 5V±0.1	
Preheat time	Over 24 hour		

### D. Structure and configuration, basic measuring circuit



Structure and configuration of MQ-135 gas sensor is shown as Fig. 1 (Configuration A or B), sensor composed by micro Al<sub>2</sub>O<sub>3</sub> ceramic tube, Tin Dioxide (SnO<sub>2</sub>) sensitive layer, measuring electrode and heater are fixed into a crust made by plastic and stainless steel net. The heater provides necessary work conditions for work of sensitive

components. The enveloped MQ-135 have 6 pin ,4 of them are used to fetch signals, and other 2 are used for providing heating current.

Electric parameter measurement circuit is shown as Fig.2

#### E. Sensitivity characteristic curve

Fig.2 sensitivity characteristics of the MQ-135

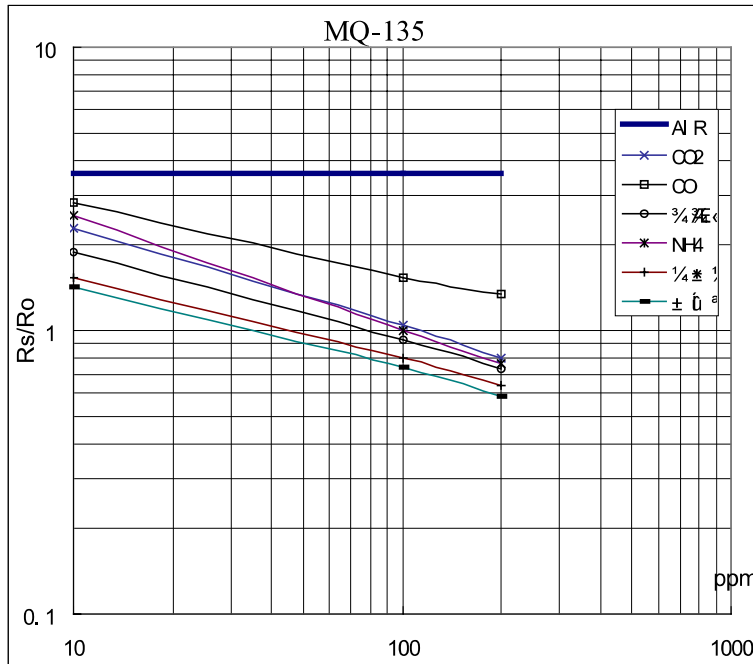


Fig.3 is shows the typical sensitivity characteristics of the MQ-135 for several gases.

in their: Temp: 20  
Humidity: 65%  
O<sub>2</sub> concentration 21%  
RL=20kΩ  
Ro: sensor resistance at 100ppm of NH<sub>3</sub> in the clean air.  
Rs:sensor resistance at various concentrations of gases.

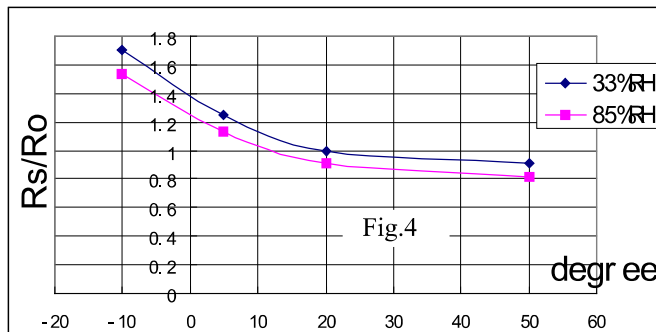


Fig.4 is shows the typical dependence of the MQ-135 on temperature and humidity.

Ro: sensor resistance at 100ppm of NH<sub>3</sub> in air at 33%RH and 20 degree.  
Rs: sensor resistance at 100ppm of NH<sub>3</sub> at different temperatures and humidities.

#### SENSITIVITY ADJUSTMENT

Resistance value of MQ-135 is difference to various kinds and various concentration gases. So,When using this components, sensitivity adjustment is very necessary. we recommend that you calibrate the detector for 100ppm NH<sub>3</sub> or 50ppm Alcohol concentration in air and use value of Load resistancethat( R<sub>L</sub>) about 20 KΩ(10KΩ to 47 KΩ).

When accurately measuring, the proper alarm point for the gas detector should be determined after considering the temperature and humidity influence.

